

REMARKS

Claim 25 has been cancelled.

Claims 1, 20-24, 26, 27 and 29-33 are now pending.

Claims 1 and 29-33 were rejected under 35 USC §112, first paragraph, as failing to comply with the written description requirement. Concern was expressed that the term "amino acid identity of 90% or greater..."

Support for this can be found in the summary of the invention and in the claims as originally filed. Attention is kindly invited to pabe36 at lines 6-11 which refers to the degree of homology between two polypeptide sequences. Attention is kindly invited to Table 3 on page 45. Thus, it is respectfully submitted that there is compliance with the written description requirement.

Withdrawal of the rejection of claims 1 and 29-33 under 35 USC §112, first paragraph, as failing to comply with the written description requirement is respectfully requested.

Claims 1, 20-24, 26, 27 and 29-33 were rejected under 35 USC §112, first paragraph, on the ground that the specification is not enabling for any part of the claimed sequences which is useful in antisense inhibition or sense suppression of endogenous desaturase activity in a transformed plant.

Antisense inhibition is discussed in multiple instances throughout the specification. Attention is kindly invited to page 53 at lines 25 and page 54 at lines 1-5. The portion recited on page 53 of the specification is the following:

Antisense RNA has been used to inhibit plant target genes in a tissue-specific manner (see van der Krol et al., *Biotechniques* (1988) 6:958-976). Antisense inhibition has been shown using the entire cDNA sequence (Sheehy et al., *Proc. Natl. Acad. Sci. USA* (1988) 85:8805-8809) as well as a partial cDNA sequence (Cannon et al., *Plant Molec. Biol.* (1990) 15:39-47). There is also evidence that the 3' non-coding sequences (Ch'ng et al., *Proc. Natl. Acad. Sci. USA* (1989) 86:10006-10010) and fragments of 5' coding sequence, containing as few as 41 base-pairs of a 1.87 kb cDNA (Cannon et al., *Plant Molec. Biol.* (1990) 15:39-47), can play important roles in antisense inhibition.

This portion indicate that a partial sequence can be used as well as 3' and 5' non-coding sequences. Reference to the Jorgensen Patent concerning co-

suppression was made to demonstrate that one skilled in the art would know what to do in seeking a partial sequence that would be useful to down-regulate expression. It should be noted that Example 8 of the '020 patent discusses modified production of plant oils and describes one approach to transformation.

It is stated further on page 54 that :

For example, antisense inhibition of delta-15 desaturase in Brassica napus resulting in altered levels of polyunsaturated fatty acids may be achieved by **expressing antisense RNA from the entire or partial cDNA found in pBNSF3-2.** (Emphasis added).

Comparable information is provided with respect to cosuppression that can be found on page 54 at lines 6-30. Those of ordinary skill in the art would be able to practice the claimed invention without engaging in undue experimentation.

The following quote can be found in Applicants' Assignee's U.S. Patent No. 6,872,872B1 issued March 29, 2005 (this patent issued on application that claims priority back to Nov. 17, 1992):

Inhibition of Plant
Target Genes by Cosuppression

The phenomenon of cosuppression has also been used to inhibit plant target genes in a tissue-specific manner. Cosuppression of an endogenous gene using the entire cDNA sequence (Napoli et al., *The Plant Cell* (1990) 2:279-289; van der Krol et al., *The Plant Cell* (1990) 2:291-299) as well as a partial cDNA sequence (730 bp of a 1770 bp cDNA) (Smith et al., *Mol. Gen. Genetics* (1990) 224:477-481) are known.

The nucleic acid fragments of the instant invention encoding fatty acid desaturases, or parts thereof, with suitable regulatory sequences, can be used to reduce the level of fatty acid desaturases, thereby altering fatty acid composition, in transgenic plants which contain an endogenous gene substantially homologous to the introduced nucleic acid fragment. The experimental procedures necessary for this are similar to those described above for the overexpression of the fatty acid desaturase nucleic acid fragments except that one may also use a partial cDNA sequence. For example, cosuppression of delta-12 desaturase in *Brassica napus* and soybean resulting in altered levels of polyunsaturated fatty acids may be achieved by expressing in the sense orientation the entire or partial seed delta-12 desaturase cDNA found in pCF2-165D and pSF2-165K, respectively. Endogenous genes can also be inhibited by non-coding regions of an introduced copy of the gene [For example, Brusslan, J. A. et al. (1993) *Plant Cell* 5:667-677; Matzke, M. A. et al., *Plant Molecular Biology* 16:821-830]. We have shown that an *Arabidopsis* gene (SEQ ID NO:15) corresponding to the cDNA (SEQ ID NO:1) can be isolated. One skilled in the art can readily isolate

genomic DNA containing or flanking the genes and use the coding or non-coding regions in such transgene inhibition methods.

Furthermore, it should be noted that a commercial high oleic product resulting from the invention claimed in Applicants' Assignee's U.S. Patent No. 6,872,872B1 is expected to be on the market sometime in 2009. The product that will be launched was developed using a co-suppression construct containing a partial desaturase gene.

It was asserted on page 4 of the Office Action that "applicants are arguing limitations that are not in the claims, wherein no minimum size is set forth to define a portion or fragment of the recited SEQ ID numbers. . . ."

Applicants respectfully disagree. The claims recite that the part of the sequence that is used is useful in antisense inhibition or cosuppression. This is readily understood by one of ordinary skill in the art.

It is further alleged on page 4 of the Office Action that "...the effect of transforming a plant with any portion of any of the recited sequences or sequences that encode amino acids of 90% identical (sic) or would hybridize to said sequences under the recited conditions is highly unpredictable as stated in the last office action. . . ."

Attention is kindly invited to pages 40-45 of the instant specification in which Arabidopsis delta-15 desaturase cDNAs were used as hybridization probes to isolate delta-15 desaturase cDNAs from other plant species.

It is further discussed on page 48-52 that stretches "of conserved amino acids between delta-15 desaturase and other desaturases especially, desA, allow for the design of such oligomers." Conserved stretches are identified on page 49 of the specification.

Given this, it is respectfully submitted that no undue experimentation would be needed one of ordinary skill in the art to make and use the claimed invention.

A Petition for a two (2) month extension of time and a Notice of Appeal accompany the filing of this Response After Final.

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,

/Lynne M. Christenbury/

LYNNE M. CHRISTENBURY
ATTORNEY FOR APPLICANT

Registration No.: 30,971

Telephone: (302) 992-5481

Facsimile: (302) 892-1026

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